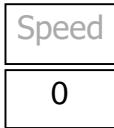


What is Program variable?

For example a variable has the identifier Speed which holds the value 0

So a variable:



- has a name represented by an identifier
- it holds a value (or space for a value) that can be changed by a program
- stored in an area of main memory storage

Example of a Scratch variable

Aeroplane: Speed 0

A Scratch-style variable label 'Aeroplane: Speed' in a light blue rounded rectangle, followed by an orange square button containing the number '0'.

Programming data types

Number types

- Integer
- Float or real

Text based types

- Character
- String

Logical type

- Boolean

The integer type

Is a whole number that can be positive or negative – e.g.

10, 3, -12, 0, or 1000

The float or real date type

A number that must have a fractional part either positive or negative – e.g.

2.3 , 10.45, -12.0, 0.0, or 100.0

Boolean data types

Holds a single binary value - True or False.

Text based data types

Character

- A single letter, digit, space, punctuation or special symbol. E.g. "A" "b" "%" etc.

String

- The word "computer," is a string of eight characters. Each character requires one byte of space, so "computer" takes up 8 bytes.

To avoid confusion between numbers and strings, quotes are used:

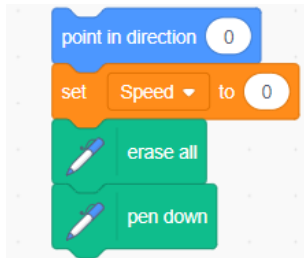
- 12 is an integer
- "12" is a string length 2 with the characters "1" and "2"

What are the 3 Main Programming Constructs?

- **Iteration** - repeating or looping program instructions
- **Sequence** - following instructions one after another in the order they are written
- **Selection** - using a question to decide if code is to be following or not.

Example of a Scratch Sequence

A sequence is when two or more blocks are connected together

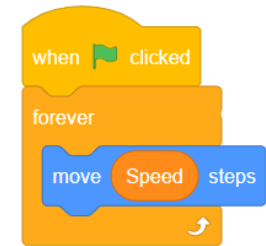


Scratch will execute the instructions in order starting with;

- ✓ set the direction to 0 first,
- ✓ then set the speed to 0,
- ✓ then erase all the pen marks
- ✓ and finally put the pen in the down position.

Example of a Scratch Iteration

forever
is an iteration control command



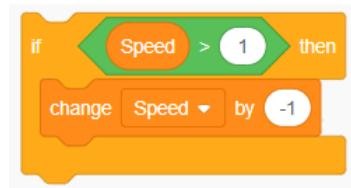
It repeats the move block many times.

Also

- repeat
- repeat until

Example of a Scratch Selection

if then
is an example of selection in code



Selection uses a question

is speed greater than 1?

to decide whether to decrease the speed variable by 1

if then can have an elsepart for when the answer to the question is not met.

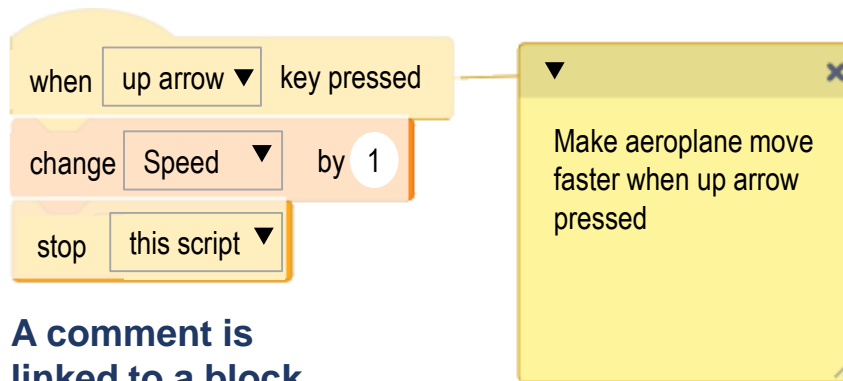


Program Comments

Programmer-readable explanation or annotation in the code of a computer program.

They are added to make code easier for humans to understand and are generally ignored by the computer.

It is good practice to write comments in your code to make it more readable.



A comment is linked to a block of code.

Further Reading –
See link below

<http://exmouthcollege.moodle.webanywhere.co.uk/course/view.php?id=77>